ELSEVIER

Journal of Magnetism and Magnetic Materials 209 (2000) xviii–xx

Journal of magnetism and magnetic materials

www.elsevier.com/locate/jmmm

Contents

Chairmen's preface xiii

1. Magnetic recording I

R.L. White
The physical boundaries to high-density magnetic recording 1

2. Magnetic recording II

I.Y. Shen
Recent vibration issues in computer hard disk drives 6

3. Magnetic applications I

C.S. Tsai
Wideband tunable microwave devices using ferromagnetic film–gallium arsenide material structures 10

E. Schloemann
Advances in ferrite microwave materials and devices 15

4. Theory

G.N. Coverdale and R.W. Chantrell
Calculations of the microstructure and magnetic properties of particulate recording media 21

I. Klik and Y.D. Yao
Stretched-exponential decay in isolated single domain particles 25

W.-Y. Ching and Y.-N. Xu
Magnetic structure and Fe moment distribution in rare-earth iron intermetallic compounds by first-principles calculations 28

G.Y. Guo
Orientation dependence of the magnetoelastic coupling constants in strained FCC Co and Ni: an ab initio study 33

J.J. Lu, H.Y. Deng and H.L. Huang
Thermal relaxation of interacting fine magnetic particles – field-cooled and zero-field-cooled magnetization variation 37

5. Applications and devices

N. Takahashi
Optimal design of magnetic devices 42

R.W.J. Chia, C.C. Wang and J.J.K. Lee
Effect of adatom mobility and substrate finish on film morphology and porosity: thin chromium film on hard disk 45

D.R. Huang, T.F. Ying, S.J. Wang, L.T. Kuo, H.C. Huang and C.Y. Huang
An innovative design of a slim type DVD spindle motor 50

H.C. Tong, C. Qian, L. Miloslavsky, S. Funada, X. Shi, F. Liu and S. Dey
Studies on antiferromagnetic/ferromagnetic interfaces 56

6. Magnetoresistance

C.-R. Chang and S.-P. Chen
Enhancement of tunneling magnetoresistance through a magnetic barrier 61

7. Magnetoresistance and Magnetism

M. Takahashi, M. Tsunoda and K. Uneyama
Extremely clean sputtering process for spin valves: exchange anisotropy and spin-dependent transport 65

8. Magnetic applications II

J.M.D. Coey and S. Cass
Magnetic water treatment 71

T.-H. Chin
Permanent magnet films for applications in microelectromechanical systems 75

9. Nanostructure magnetics

S.-M. Peng, C.-C. Wang, Y.-L. Jang, Y.-H. Chen, F.-Y. Li, C.-Y. Mou and M.-K. Leung
One-dimensional metal string complexes 80

0304-8853/00/$ - see front matter © 2000 Elsevier Science B.V. All rights reserved.

S.-B. Choe and S.-C. Shin
Magnetic domain reversal dynamics in Co/Pd nanomultilayers 84

J.C.A. Huang, L.C. Wu, M.M. Chen, T.H. Wu, J.C. Wu, Y.W. Huang, C.H. Lee and C.M. Fu
Perpendicular magnetic anisotropy and magnetic domain structure of unpatterned and patterned Co/Pt multilayers 90

10. Advanced magnetic materials

W.-C. Chiang, J.G. Lin, C.Y. Huang, D.R. Huang and C.A. Chang
Magnetic anisotropy of pseudo-spin-valve Co/Cu/NiFe 95

H.H. Wang and G.Y. Guo
Gradient-corrected density functional calculation of structural and magnetic properties of BCC, FCC and HCP Cr 98

C.-M. Kuo, P.C. Kuo, W.-C. Hsu, C.-T. Li and A.-C. Sun
Effects of W and Ti on the grain size and coercivity of $Fe_{50}Pt_{50}$ thin films 100

B.C. Yao, J.B. Lee, C.C. Chi, M.K. Wu and H.C. Yang
Temperature dependence of tunneling spectroscopy in epitaxial thin film $Pr_{0.5}Sr_{0.5}MnO_3$ 103

J.C.A. Huang and H.C. Chiu
Influence of growth orientation on the exchange bias in epitaxial $CoMn/Ni_{80}Fe_{20}$ films 106

C.-H. Lee, K.-L. Yu, M.-H. Lee, J.C.A. Huang and G.P. Felcher
The magnetic depth profile at the interface of a permalloy/Co thin film studied by polarized neutron and X-ray reflectivity 110

R.S. Liu, C.H. Shen, S.F. Hu, J.G. Lin and C.Y. Huang
New advanced magnetic $La_{1.2}(Sr_{1.8-x}Ca_x)Mn_2O_7$ compounds with colossal magnetoresistance 113

S.Y. Wu, R.Y. Lin, C.Y. Cheng, W.H. Li, K.C. Lee and H.D. Yang
Superconductivity and magnetic order in $TbSr_2Cu_{2.69}Mo_{0.31}O_7$ 116

Y.H. Wang, C.-H. Lai, C.K. Lo and Y.D. Yao
Exchange anisotropy of epitaxial (0 0 1) NiMn/NiFe 119

C.-H. Lai, S.-A. Chen and J.C.A. Huang
Stress-induced exchange anisotropy of epitaxial (1 1 1) NiFe/NiFeMn 122

C.-R. Chang and T.C. Cheng
Abrupt relaxation in high-spin molecules 125

11. Magnetoresistance

J.G. Lin, M.R. Wu, D.H. Ngu, C.Y. Huang and S. Mao
Effect of ion-irradiation on the NiFe/Cu/NiFe/NiMn spin valve 128

S.C. Ma, C.K. Lo, Y.D. Yao, D.Y. Chiang, T.F. Ying and D.R. Huang
The GMR effect of Cu/Co multilayer on Si(1 0 0) 131

S.S. Liu and G.Y. Guo
Voltage-dependence of magnetoresistance in ferromagnetic tunneling junctions: a rigorous free electron model study 135

G. Chern, L. Horng, M.Z. Lin, S.M. Li, D.S. Lee, T.Y. Hou, M.F. Tai and T.-h. Wu
Structural and magnetic characterization of Fe_3O_4/Mn_3O_4 superlattices 138

C.M. Kuo, S.Y. Wu, W.-H. Li, K.C. Lee and H.D. Yang
Effects of Ca-doping on the transport and magnetic properties of $La_{1.4}Sr_{1.6}Mn_2O_7$ 142

S.L. Young, Y.C. Chen, L. Horng, T.C. Wu, H.Z. Chen and J.B. Shi
Structural and magnetic properties in $La_{0.7}Pb_{0.3}Mn_{1-x}Co_xO_3$ systems 145

M.F. Tai, F.Y. Lee and J.B. Shi
Co doping effect on the crystal structure, magnetoresistance and magnetic properties of an $(La_{0.7}Ba_{0.3})(Mn_{1-x}Co_x)O_3$ system with $x = 0 - 1.0$ 148

C.M. Fu, K.S. Hsu, M.L. Lin and Z.H. Wen
Giant magneto-impedance effects in sintered $La_{1-x}Ca_xMnO_3$ oxides 151

C.-M. Fu, K.S. Hsu, M.L. Lin and Z.H. Wen
Frequency-dependent magneto-impedance spectra in manganite oxides 154

12. Advanced recording technologies

C. Tsai, J. Liang, H.H. Liang and C.M. Wang
Sputtering parameters affecting the corrosion resistance of CoCrPtTa thin film media 157

G. Sheng, B. Liu, W. Hua and Y. Zhu
Stable interface concept and design for nano-meter spacing magnetic recording 160

W. Hua, B. Liu, G. Sheng and Y. Zhu
Investigations of disk surface roughness on the dynamic performance of proximity recording slider 163

Z. Yuan and B. Liu
Anti-thermal asperity head: design and performance analysis 166

13. New magnetic applications

C.S. Hwang, C.T. Chen, P.C. Chang, H.H. Chen, C.H. Chang and M.H. Huang
A permanent magnet device for producing variable high magnetic field in three dimensions 169

C.H. Chang, Ch. Wang, C.S. Hwang, M.H. Huang, T.C. Fan, H.H. Chen and F.Y. Lin
Magnetic design of a 3 T time-varying elliptical wiggler 173

C.-P. Liu, T.-K. Lin, Y.-H. Chang, S.-H. Hu, K.-T. Wu, L.-T. Kuo, H.-C. Huang, T.-F. Ying and D.-R. Huang
The performance of a single-phase DC brushless motor utilizing the ferromagnetic base material 176

Y.-K. Lin, Y.-N. Hu, T.-K. Lin, H.-N. Lin, Y.-H. Chang, C.-Y. Chen, S.-J. Wang and T.-F. Ying
A method to reduce the cogging torque of spindle motors 180

T.-K. Lin, Y.-H. Chang, H.-C. Huang, S.-J. Wang, T.-F. Ying and D.-R. Huang
The dynamic performance affected by the axial magnetic force for a DVD spindle motor 183

J.-T. Jeng
Nonlinear adaptive inverse control for the magnetic bearing system 186

C.Y. Tsay, K.S. Liu, T.F. Lin and I.N. Lin
Microwave sintering of NiCuZn ferrites and multilayer chip inductors 189

S.H. Chen, S.C. Chang and I.N. Lin
The influence of grain boundary internal stress on permeability: temperature curve for Mn–Zn ferrites 193

B.Y. Huang, K. Yamamoto, C. Kaido and Y. Yamashiro
Effect of cold-rolling on magnetic properties of non-oriented silicon steel sheets (Part II) 197

C.-P. Liu, T.-K. Lin, Y.-H. Chang, C.-S. Yu, K.-T. Wu, S.-J. Wang, T.-F. Ying and D.-R. Huang
Study of eddy current power loss from outer-winding coils of a magnetic position sensor 201

14. Nanostructure magnetics

M.-R. Jian, T.-S. Chin, J.-L. Tsai, H.-W. Zhang and B.-G. Shen
Structure and magnetic properties of textured $Nd(Fe,Ti)_{12}N_x$ films 205

J.S. Tsay, Y.D. Yao, Y. Liou, S.F. Lee and C.S. Yang
Comparison of magnetic properties of ultrathin Co/Si(1 1 1) and Co/Ag/Si(1 1 1) films 208

M.-T. Lin, H.Y. Her, Y.E. Wu, C.S. Shern, J.W. Ho, C.C. Kuo and H.L. Huang
Annealing effects on magneto-optical Kerr effect and magnetic anisotropy in ultrathin Co films on Pt(1 1 1) 211

B.K. Wang, G.Y. Guo and C.-R. Chang
Calculated structural and magnetic properties of artificially made $L1_0$ FeCu superlattice 214

J.Y. Lin, J.S. Tsay, Y. Liou, Y.D. Yao, S.F. Lee and C.S. Yang
High-temperature magnetization anomaly in Co/Ag/Si(1 1 1) ultrathin films 217

T.-H. Wu, J.C. Wu, C.S. Wu, B.-M. Chen and H.-P.D. Shieh
Geometric shape dependence of coercivity for patterned magnetic thin films 220

T.-H. Wu, J.C. Wu, Y.W. Huang, L.X. Ye, B.-M. Chen and H.-P.D. Shieh
Relaxation of pinned domains in patterned magnetic thin films 224

15. Others

H.J. Choi, C.A. Kim, T.M. Kwon and M.S. Jhon
Viscosity of magnetic particle suspensions 228

S.F. Lee, C. Yu, W.T. Shih, Y. Liou and Y.D. Yao
Properties of Nb/Co trilayers 231

C.C. Hwang and J.J. Chang
Design and analysis of a high power density and high efficiency permanent magnet DC motor 234

L. Horng and K. Chen
Detailed analysis of magnetic phase diagram in Bi-2223 superconductors 237

C.L. Chang, M.F. Tai, T.W. Chung, F.Y. Lee, Y.W. Su, S.Y. Liu, C.S. Hwang, P.K. Tseng and J.B. Shi
X-ray absorption spectroscopy study of the $La_{0.7}Ba_{0.3}Mn_{1-x}Co_xO_3$ system 240

H.-N. Lin, C.-R. Chang and Y.-H. Chiou
Magnetic force microscopy study of a defect-induced orthogonal magnetic structure on a cobalt film 243

K.T. Wu, Y.D. Yao and H.K. Huang
Comparison of dynamic and optical properties of Fe_3O_4 ferrofluid emulsion in water and oleic acid under magnetic field 246

Author index 249
Subject index 253